

**USEPA Review of the Draft Removal Action Completion Report, Radiological  
Remediation and Support, Parcel D-1 Phase II, Hunter's Point Naval Shipyard,  
San Francisco, California, August 2017  
Comments dated November, 2017**

**GENERAL COMMENTS**

1. This review does not include comments on Section 5.0, Former NRDL Site Final Status Survey, and Section 6.0, Ship Berths 14, 21, 22, and 29 Final Status Survey, which will be provided on the related Final Status Survey Reports, which are also under review separately. Changes made in response to those comments should be made to Sections 5.0 and 6.0 of the Draft Radiological Removal Action Completion Report Radiological Remediation and Support, Parcel D-1 Phase II (the Draft RACR), as applicable.
2. Section 1.4.5 (Work Variances) of the Draft RACR includes four Field Change Requests (FCRs) that require further explanation to fully understand the scope of the activity and approval process for these changes, as follows:
  - FCR Number 001 states that the Sampling and Analysis Plan (SAP) specified a five day in-growth period for preliminary screening analysis but that but that a decision was made in the field that no in-growth was needed. Also, it is unclear whether this screening analysis was for measurements in a field laboratory or a more permanent on-site laboratory. In addition, the text does not state to which analysis or radionuclide this FCR applies. Presumably, this FCR is in reference to the radium 226 (Ra-226) analysis, but this should be confirmed. Please explain why an approved SAP requirement was changed in the field and how it was determined that providing an analysis with no in-growth time would provide usable screening data and specify the radionuclide(s) to which this FCR applies. Please revise the text to include these details and to include information about which oversight and/or Quality Assurance (QA) management approvals were obtained for this change. Finally, please also include information about where the change request and approvals are documented.
  - FCR Number 003 states that the SAP specified sampling every three meters and conditional Strontium-90 (Sr-90) analysis if pipe segments samples exceeded the Cesium-137 (Cs-137) release criterion. Exhibit 1-3 states that per an agreement with the Navy's Radiological Affairs Support Office (RASO), only ten percent of pipe sediment samples exceeding the Cs-137 release criteria would undergo Sr-90 analysis and confirmation samples for pipe segments would be collected every twenty meters. However, the text does not state why it was considered acceptable to only analyze ten percent of samples exceeding the Cs-137 release criteria for Sr-90 or why the sampling frequency was decreased from the original requirements in the SAP. Please revise the Draft RACR to address these concerns and to also include information about the specific oversight management and/or QA management approvals that were obtained for these changes and how/where the approvals are documented.
  - FCR Number 007 states that the analytical method specified for manganese in the SAP was changed to the same method as that specified for lead. While this may be

acceptable, the RACR should specify the actual analytical methods and whether the analytical method change for manganese still met the required detection limit requirement. Please revise the Draft RACR to include this information and to state who was responsible for the approval of this change and how/where the approvals are documented.

- FCR Number 008 states that the RS-700 system work instruction specified a three hundred second count time for quality control checks but a field change was made to only require a one hundred eighty second count time. Please revise the text to explain how it was determined that the one hundred eighty second count time was sufficient for the purpose of counting quality control check standards and which management or QA staff approved this change and how/where the approvals are documented.
3. Section 3.3 (Sampling and Analysis) states the laboratories are accredited under the Department of Defense (DoD) and State of California accreditation programs; however the text does not specify if all three of the listed laboratories have both accreditations, and if the accreditations are applicable to radiological analyses. Please revise this text to include this information.
  4. The third paragraph of Section 3.3.1 (Radiological Analyses) states that if sample results were greater than or equal to the Cs-137 or Sr-90 release criteria, they were analyzed by alpha spectroscopy for Plutonium-239 (Pu-239). While it is understood that Cs-137 and Sr-90 are fission products associated with the fission of Pu-239, the Historical Radiological Assessment (HRA) indicates that Pu-239 was also obtained in pure form as sources that were used in the Naval Radiological Defense Laboratory (NRDL), yet the text does not indicate whether any samples were analyzed by alpha spectroscopy for Pu-239 without finding exceedances of Cs-137 or Sr-90. Please revise the Draft RACR to address this concern.
  5. The summary of results should include the associated counting or total propagated uncertainty. Exhibit 4-4, Summary of Radiological Screening Yards (RSY) Sample Results; Exhibit 4-6 Summary of Trench Sample Results; Exhibit 5-2, Summary of NRDL Sampling Results; and Exhibit 6-1, Summary of Ship Berth Sample Results list the maximum concentration of radionuclides of concern (ROCs) detected, as well as any noted release criteria exceedances. However, the results are not reported with the associated counting or total propagated uncertainty, and the text does not state whether any of the maximum results or those that showed an exceedance had any associated qualifiers from the data validation. For completeness and clarity, please revise the tables to include the uncertainty and the text to discuss whether any of the maximum results or those that showed an exceedance had any associated qualifiers from the data validation.
  6. Section 4.7 (Trench Survey and Sampling) states on page 29 that dose and risk modeling of the trench surfaces was performed in RESRAD using analytical results, but does not state which sample results were used in the modeling. For example, it is unclear if all data points were entered into RESRAD, if only the maximum results were used, if results that showed exceedances of a release criterion were used, or if only post-remediation sample results were included in the RESRAD model. Please revise the RACR to clarify the results that were input into RESRAD.

7. Section 4.9 (Backfill, Compaction, and Testing of Excavated Trenches, Page 31) of the Draft RACR states that imported backfill material from the “Jericho” soil stockpile underwent appropriate screening and Navy approval in Section; however, Attachment 1 (Jericho Soil Stockpile Radiological Screening Data) does not present results for Sr-90 or Pu-239, which are radionuclides of concern at Parcel D-1. It is uncertain if soil was tested for these radionuclides prior to using the Jericho soil stockpile as backfill material. Parcel D-1 should not be approved for unrestricted use until the fill material is tested for all radionuclides of concern. Please explain why the Jericho soil backfill material was not tested for all radionuclides of concern, notably Sr-90 and Pu-239. Alternatively, please sample the Jericho soil backfill to analyze for Sr-90 and Pu-39 and present results prior to finalization of the RACR to ensure removal action goals were met.
8. The draft describes unexpected radiological objects found in sediment used as fill. Though beyond the scope of these comments, this finding raises the question of potential similar situations elsewhere on the Shipyard where sediment could also have been used as fill and where Tetra Tech EC’s practices may have always followed Workplan requirements. We can revisit this question separately later.

## **SPECIFIC COMMENTS**

1. **Section 4.4, Trench Excavation, Page 24:** The third paragraph states that abandoned steam piping wrapped in asbestos-containing material was found and an asbestos contractor was brought in to monitor the air; however, the results of this air monitoring are not presented in this section or referenced. If the results are available, please reference the appropriate section or appendix in the Draft RACR.
2. **Section 4.5, Radiological Screening Yard Operations, Page 27:** Section 4.5 states that samples of soil excavated from installation restoration (IR) sites were analyzed for re-use as backfill or waste characterization but does not discuss what constituents were detected above chemical clean-up goals or how much soil was disposed. As Appendix K, IR Site Chemistry Sampling Results only contains laboratory data, a summary of chemical exceedances that resulted in the off-site disposal of soil should be provided. Please revise the Draft RACR to include a discussion of constituents found above clean-up goals in excavated soil and an associated summary table.
3. **Section 4.6, Removal of Piping and System Components, Pages 27 through 28:** Section 4.6 indicates that non-soil material was characterized, handled, and properly disposed of; however, the volume of non-soil disposed of and the landfill to which it was sent to is not discussed. Additionally, while Section 9.0, Waste Management (Pages 54 through 55), briefly discusses waste management practices, the volume of non-soil disposed off-site is unclear. Please revise the Draft RACR to include additional detail regarding the volume and disposal of non-soil material removed.

## **MINOR COMMENT**

1. **Appendix H, Daily Activity Reports, PDF Page 2370 and PDF Page 2467:** Several pages within Appendix H are out of order, including the Daily Activity Report dated 9/18/17 on

PDF Page 2370 and Field Activity Report for 11-26-13 on PDF Page 2467. Please ensure all daily reports are in chronological order.